



Situation Analysis

Sectoral Profile Construction Sector

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Islamabad, Pakistan

April, 2019

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List of acronyms

AJK	Azad Jammu Kashmir
B-tech	Bachelor of Technology
CPEC	China Pakistan Economic Corridor
DTE	Directorates of Technical Education
GIZ	Gesellschaft für Internationale Zusammenarbeit
GB	Gilgit Baltistan
KP	Khyber Pakhtunkhwa
KII	Key Information Interviews
NAVTTTC	National Vocational and Technical Training Commission
NSIS	National Skills Information System
PVTC	Punjab Vocational Training Council
SPSS	Statistical Package for Social Science
SDC	Skill Development Councils
TEVTAs	Technical and Vocational Training Authorities
TRSP	TVET Reform Support Programme
SSP	Sector Support Programme

Foreword

Construction is considered as one of the industrial sectors having higher employment potential for skilled workforce. It has a significant share of 40 to 60 percent in gross fixed capital formation, as major chunk of industries is linked with this sector. Despite lower economic growth in recent years, the construction sector in Pakistan has performed comparatively well over the years. According to the Economic Survey of Pakistan 2016-17, construction sector recorded a growth of 9.1 percent in the gross domestic product. This higher growth can be attributed to the commencement of the construction projects under China-Pakistan Economic Corridor (CPEC). Being cognizant of the importance of this sector for reducing unemployment and uplifting the economic growth, the Government of Pakistan has set construction as a priority sector and announced the scheme of building five million low cost houses which would provide employment to a large cohort. These initiatives together with domestic demand will significantly increase the demand of skilled workforce in the construction sector. However, timely measures would be needed to balance the supply and demand of skilled workforce in this sector.

Creation of skilled workforce and linking it up with the market/ employers is a serious challenge for TVET sector in Pakistan. The government of Pakistan has made special efforts for skill development by setting up National Vocational and Technical Education Commission (NAVTTTC) at the federal level and Technical Education and Vocational Training Authority (TEVTA) at the provincial level with a view to provide sustained supply of competent skilled human resource according to market demand, to encourage private sector in technical and vocational training and to bring harmony/ develop linkage between technical education and vocational training.

In order to bridge the gap between labour market and the TVET institutions, Sector Skills Council (SSC) has been established having representation from leading employers and professionals in construction sector. The prime objective of establishing SSC is to provide policy guidelines to the government, monitor the employment trend, define competency standards for occupations in construction sector, and enhance the quality of certification and its recognition in local and international labour markets. To show its commitment to the skills development sector, the SSC has developed a Business Strategy for the years 2018-21 and this sectoral report is the first outcome in this endeavour that would provide input to policy makers and other stakeholders in devising relevant strategies and plans for skills development for construction sector.

The Sector Skills Council (SSC) for Construction is obliged for the valuable support and facilitation extended by NAVTTTC and TVET Sector Support Programme (SSP). We really appreciate the reforms introduced by NAVTTTC under the TVET SSP and acknowledge the efforts made to mitigate the challenged of unemployment and to further extend its contribution in economic development of the country.

Executive Summary

This report is a situational analysis of workforce requirements of construction sector in Pakistan. The purpose of this study is to assess the employment pattern, analyse gap between demand and supply and to determine the future skill requirements of the construction sector in the country. The findings and recommendations of this report would help the policymakers and TVET stakeholders in designing and implementing demand driven training courses which ensure employability and provide relevant workforce to industry at large.

It is generally recognised that there exists a huge gap between TVET supply and demand in Pakistan, specifically the mismatch is reported in construction sector. The existing supply of skilled workforce in the job market is 445,072 approximately, whereas the demand in national and international market is around 1,025,860 (*Reference: www.skillingpakistan.org*). The construction sector, being a labour-intensive and engrossing variety of skill sets, has been scored on the top of the priorities in the earlier reports.

The study is based on primary data collected from sample respondents using a pre-designed questionnaire. The target population in this survey are the registered construction sector units having at least five permanent skilled workers. A total of 2,300 units were randomly selected for data collection across the country.

The report is structured based on the following objectives:

- Existing workforce profile of the construction sector;
- Demand and supply gap of skilled workforce; and
- Future skilled workforce requirement of construction sector

The results of the survey indicate that 77 percent of skilled workforce in the construction sector is employed from informal sector (skills acquired *on-the job* or through *ustad-shagird system*) whilst, the formal sector contributes only 14 percent share in employment in this sector. The provincial breakdown of the formal and informal sector contribution in employment in construction sector is also in proximity with the national profile. Formal sector contribution in employment in Balochistan is 9 percent, 10 percent in AJK, 14 percent in KP, 15 percent in Punjab and 16 percent in Sindh. Unfortunately, the female workforce participation in the construction sector is discouraging as only 4 percent females from Punjab 5 percent from Sindh are engaged in employment.

Mixed results were observed across provinces about the deficient skilled workforce. For example, the job market in Khyber Pakhtunkhwa (KP), Azad Jammu and Kashmir (AJK) and Sindh face shortage of skilled workforce in construction sector. In general, the job markets in Punjab and Balochistan face no shortage of skilled workforce in construction but skills mismatch was reported in all provinces. Perhaps, there is

an imbalance of the availability of skilled workforce trained through formal education and those who are abundantly available and employed from informal sector.

It was also discovered in the survey that the employers prefer for the workers trained in formal sector and more preferences is given to diploma and certificate holders, instead of B.Tech. Prime reason could be the way diploma and certificate holders are trained as compared to higher level qualification, as during their training journey primary focus is on theory rather on practical learning of the skills.

Based on the analysis, it is projected that approximately 45,144 skilled workers would be required in coming year under various occupations in construction sector in Pakistan. Almost 71 percent of the demand would be from Punjab and Sindh and the remaining share pertains to KP and AJK. Currently, there is no concrete forecast available for Balochistan, perhaps the response could not be recorded through data collection.

A further search in the data revealed that more than 20,000 electricians, 14,000 plumbers, 12,500 welders, 11,000 glass fitters and 8,000 masons would be required in the job market. The remaining 5,000 job pertains to other allied occupations in construction sector, further information is available in the succeeding parts of the report.

High satisfaction was reported in terms of workforce trained in formal sector as compared with the informal sector. When asked about TVET sector, lesser employers had relevant information which indicates that strong media campaign and marketing would be required so that workforce could be hired from formal sector. The role of job placement and vocational counselling centres would be critical as they can play vital role in marketing and branding of TVET supply. Following are some of the recommendations that can help in creating and facilitating employability in construction sector:

1. At present there is no mechanism to link the TVET trained workforce with contractors. Government needs to establish local market places of Job Placement Centres to register the formally qualified skilled workers in construction sector.
2. NAVTTC has established about 100 Job Placement Centres, these centres need to be strengthened and their link with employers need to be established for easing the employment process.
3. For bridging the gap between employer and TVET institutions, awareness sessions need to be organized. These interactions will enhance understanding and create close linkages between employers and skilled workers.
4. Training packages for construction sector need to be reviewed and updated according to local and international job markets. In this regard, National Competency Standards (NCS) must be introduced for all the occupations relating to construction sector.
5. A system of Recognition of Prior Learning (RPL) must be introduced for workers employed in construction sector so that the chances of their employability and recognition are increased.

Background & Rational

The Government of Pakistan has committed to reform its system of technical education and vocational training (TVET) to improve skill development to achieve sustained economic and social development, maintaining global competitiveness and responding timely to changes in technology and work patterns. Since April 2011, the TVET Reform Support Programmes (RSP) has assisted the Government of Pakistan in the implementation of its ambitious TVET sector reform. The programme is co-funded by the European Union and the Federal Republic of Germany, The Royal Embassy of Norway and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. Programme partners include the National Vocational and Technical Training Commission (NAVTTTC), the Technical and Vocational Training Authorities (TEVTAs) in provinces and regions, and other stakeholders including industry. In the current phase 2 (2017-2021) the Programme has been focussing on utilization of information and statistics in decision making in Pakistan. To do so, it is planned to further involve enterprises in TVET planning and delivery, enhance capacities among TVET stakeholders and support the extension of the competency-based training approach. Furthermore, the programme focuses on labour market information for the employability of Pakistani youth.

During the first phase, TVET RSP supported NAVTTTC in the establishment of the National Skills Information System (NSIS). NSIS supports decision makers and TVET planners in policy formulation and execution by providing research-based labour market data. It also facilitates career guidance and placement services for TVET graduates and employers. Following is the main purpose of the NSIS Cell.

- To develop/provide a reliable National Skills Information System for workforce development in employable skills
- To provide timely and accurate information on demand and supply analysis, to TVET planners, training institutions, industry, academia, students and public in general;
- To establish and facilitate career / vocational guidance and placement services for TVET graduates and potential employers

Skill Council in Construction Sector (SSC-C)

Sector Skills Council plays a pivotal role around the world business arena. Each sector is supported with necessary recommendations and strategies to meet national and international demand for concurrent and continuous development by following total quality management concept. Sector Skills Council-Construction Sector has keenly observed that timely and relevant skill market information has been gaining importance in the growing economies for effective participation/ employability of youth in the economic development. Particularly, as the countries of the region move to increase their productivity and competitiveness and monitor the social and economic impact of globalization, skill market information

(country's demand and supply of skilled working class) become increasingly important. Developed countries regularly monitor labour market information systems and take timely measures to match the supply of skilled workers with current and projected skill needs.

With this understanding that mismatch in the skilled workforce supply and demand is the main cause of unemployment of TVET graduates in the country, NSIS Cell has initiated research on understanding the changing employment patterns and their interaction with the technical & vocational education and training (TVET) sector. This is an important initiative to get a complete picture of skilled workforce supply to labour market and skills demand and to feed labour market data from both supply and demand side in the system.

The supply side data i.e. data from TVET institutes and provincial/ regional TVET governing bodies (e.g. TEVTAs) was added through the supply side census last year. The demand side data i.e. data from the employers and industry about skilled workforce is a survey which is on-going in all the potential sectors province-wise against the following indicators:

1. existing skilled workforce with employers
2. current skilled workforce deficiencies
3. future skilled workforce needs

This report is the outcome of the survey mentioned above. The collected information primarily focused on situational analysis to understand the status of existing skilled workforces in the construction sector, current deficiencies in formal education skilled workforce and finally skilled workforce requirement for future in the construction sector.

Objectives of the Survey

The objective of the survey is to enhance knowledge of labor market trends, skill profiles, identify skill shortages, skill training needs, skills exceeding demand, and preference/ capacities of the employers. It would help to assess the needs of the local market for demanding skills and help in selecting and designing skill specific curricula. The objective of the survey can be summarized as follows:

- Collection of data to determine the gap between demand and supply of skilled workforce in the Hospitality sector
- Assessment of quality skills in the labor market
- Design market-based training needs of the Hospitality sector
- Recruitment preference and process in Hospitality industries

Construction sector has been focussed in this study based on the rationale that past research and surveys (KIIs with TVET institutions, industries and government officials) have scored the construction sector on the top of the priority, especially in marginal provinces such as KP, AJK and Gilgit Baltistan (GB)^{1,2,3}. According to these studies, construction sector skills have high demand both locally and overseas. It is a labour-intensive sector engrossing variety of skills. The most needed skilled workers in the construction sector are; quantity surveyors, filtration technicians, cooling & heating system technicians, plant mechanics, site supervisors etc.

The demand of skilled workers in the construction sector is likely to increase in the years to come in the wake of ongoing/ future projects under CPEC & Energy. Especially, under the CPEC project, over the next few years 3,218 kilometres route will connect Kashghar in China to port Gwadar in Balochistan. In the second phase of CPEC, the rail link between Pakistan and China will be built during 2018 to 2022. Furthermore, several major power projects are in construction phase and some are being planned. These initiatives will raise significant demand of the skilled workers in the construction sector and therefore needs to be balanced with the supply of trained workers.

The objective of this study is to review the supply and demand situation of skilled workforce in the construction sector in Pakistan, to assess existing pattern of employment of skilled workforce in the construction sector, to analyse gaps between supply and demand of skilled workforce in the sector and to determine the future skills requirement. The study will help the policy makers and relevant stakeholders

¹ E.g., see A STUDY ON DEMAND DRIVEN COMPETENCY BASED TRAINING IN POTENTIAL SECTORS OF KHYBER PAKHTUNKHWA - TVET sector Study, GIZ (Draft February 2017).

² Producing Skilled Work force for Potential Economic Sector in AJK, GIZ (June 2017)

³ Producing Skilled Workforce for Potential Economic Sectors in Gilgit Baltistan, GIZ (October 2017)

in TVET sector to design market-based training needs for construction sector based on recruitment preferences and demand in the sector.

Beneficiaries of Survey

Private Sector

The businesses and industries in the private sector and the training providers are the major employers of the TVET graduates. It spends huge finance and time to attract and maintain skilled labour. It will enjoy the ease in recruitment of the best demand-driven, skilled worker from the labour market. At the same time, the private sector training provider will seek benefit from the regulated sector that will sound computation among the rival training institution.

Public Sector

NAVTTTC, TEVTAs, and PVTC need reliable information on the demand side to address supply and demand gaps in the labour market to prepare a need-based skilled workforce and to formulate effective policies and outcome of NSS. Based on the current market demands and need, the development and introduction of new trades will immensely contribute to the employment of the TVET graduates.

Target Population

The registered units (having at least 5 permanent skilled workers) of the Construction sector are part of the target population of the survey.

Approach and Methodology

The data was collected from primary sources by interviewing a stratified random sample of respondents in the construction sector. The registered units of construction sector (having at least 5 permanent skilled workers) are the main target population in this survey. The list of contractors working in housing societies were also included in the sampling frame. The survey covered all provinces including AJK and GB.

Sampling

The list of units was collected from C&W department in each province, which was used as sampling frame.

Since the above sampling frame does not support representativeness of population characteristics, as the sub-population vary considerably in their characteristics, stratification technique was used. The population was first stratified in relatively homogenous subgroups and a random sample was drawn from the list of each sub-group.

To minimize sampling error from the diverse population, a sample of sufficiently large size was randomly taken. The sample size taken for the survey ensures 95 percent confidence level/ statistical significance.

The required sample size was calculated using the following standard formula.

$$n = \frac{t^2 \times p(1 - p)}{d^2}$$

Where,

n = required sample size

t = value for selected alpha level of 0.025 in each tail = 1.96

p = proportion;

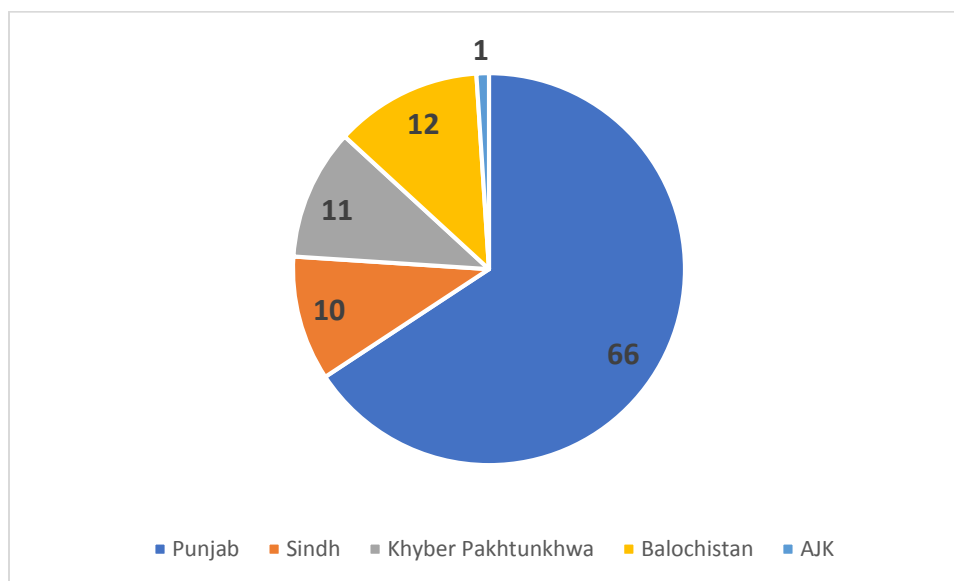
d = acceptable margin of error for proportion (0.05 standard practice)

The sample size by population unit is given in table 1. The sample drawn for each province was proportionate to the population (list of available registered firms). Province-wise coverage for the survey is also given in figure-1. The sample drawn from Punjab was highest i.e. 66% because of large proportion of registered firms in the province. The remaining sample covered was: 10% from Sindh, 11% from KP and 12 % from Balochistan. AJK got only 1% coverage based on the above-mentioned standard sampling formula.

Table 1: Province-wise sample drawn for survey

S. No.	Province	Sample
1	Punjab	1,000
2	Sindh	700
3	Khyber Pakhtunkhwa	335
4	Baluchistan	225
5	Azad Jammu and Kashmir	40
Grand Total		2,300

Figure 1: Provincial Coverage (%)



Data collection and analysis

Primary data was collected from sample respondents using a pre-designed questionnaire. Draft questionnaire was shared with sector skills council for contextualization and was revised accordingly. A team of 20 enumerators was selected and trained based on survey criteria. The enumerators trained for the survey included six from Punjab, five from Sindh, four from KP, three from Balochistan and two from AJK. A one-day training was provided to all the 20 enumerators in Islamabad on sampling techniques and data collection using the questionnaire. Field testing of the questionnaire was done by the enumerators after the training. The survey in all provinces was simultaneously initiated.

The NSIS cell used its independent monitoring team in data collection process to ensure data quality through random based spot checking and data editing of all questionnaires.

A team of data entry operators was engaged with appropriate qualification and experience to feed the data. Data cleaning and analysis was done using Statistical Package for Social Science (SPSS).

Review of Literature

Youth potential in Pakistan and the role of TVET

Pakistan ranks 6th largest country with huge demographic dividend. Geographically, Pakistan has 770,80 Km² (297,638 sq. miles) total land. According to the population census 2017, Pakistan population stands close to 200 million. The country experienced 57 percent increase in population over the last 19 years which is an alarming situation for the country. However, about one third of the population is a working class and TVET sector development can benefit from this growing youth population, if wisely planned.

Currently, the proportion of youth population in between 15-29 years is around 28 percent (of which male youth is 51 percent and female youth is 49 percent) which is expanding at an annual growth rate of 1.8 percent⁴. This provides huge youth bulge whose potential can be harnessed for their employability through TVET.

World economies harness the potential of TVET as it offers the shortest way forward to ensure productive utilization of youth population. While Pakistan is also in a struggle to utilize the youth in TVET and several initiatives have been undertaken such as Sector Skills Council, NAVTTC Board with board of Governors from private sector, task forces etcetera, yet a significant skill gap is being faced which is widening despite blossomed growth of the Technical and Vocational Education and Training (TVET) in the country.

Such a widening gap is significantly contributing towards rising unemployment in various sectors of the economy. Mismatch of demand and supply in the industry sector is attributed to the non-availability of the potential quality skilled workers with required skills and training. Currently, less than 2 percent of youth population has acquired technical skills through TVET system which indicates that the competency of such workforce is insufficient to meet local and international demand. In contrast, almost 315,000 places are available in the formal Technical Education and Vocational Training (TVET) sector for estimated 950,000 new labour market entrants each year⁵.

Construction sector has been unable to get maximum benefits from technical education and mitigate the huge demand. Wise attention has not been provided to produce skilled workforce in the construction sector and majority of these workers come from the informal sector and work-based learners. The course contents of the construction sector curricula are also not commensurate with actual demand due to which construction industry meet the demand of skilled workforce from the informal sector.

⁴ Comparative Analysis of TVET Sector in Pakistan, GIZ (February 2017)

⁵ *ibid*

TVET institutional environment in Pakistan and challenges

Over the past one decade, the government of Pakistan has given special focus on skill development programme. TVET has been re-structured at federal level by establishing a National Vocational & Technical Training Commission (NAVTTTC), while at the provincial level Technical Education & Vocational Training Authorities (TVETAs) are responsible for TVET delivery. While, Boards of Technical Education (BTEs) and Trade Testing Boards (TTBs) in provinces are responsible for assessment and certification of training programmes. A brief description of the functions and scope of each TVET body is provided in preceding sections.

National Vocational & Technical Training Commission (NAVTTTC)

At the federal level, National Vocational and Technical Training Commission (NAVTTTC) was established in 2005. NAVTTTC was mandated with “Skilling Pakistan”, under National Skills Strategy document that aims to introduce demand driven technical trainings by replacing supply driven trainings. After 18th amendment the fate of NAVTEC was under question, but in view of Article 37(c), (f); FLL Part I, Entry 16, 57; FLL Part II, entry 6, 7, 12 & 17 makes Technical and Vocational Training an essentially Federal subject.

Technical Education & Vocational Training Authority (TEVTA)

At the provincial level, Technical Education and Vocational Training Authority (TEVTA) have been established to provide technical education and vocational training at the institute level. In Punjab, TEVTA was formed through an Ordinance (No XXIV of 1999) promulgated by Governor of the Punjab which was replaced by TEVTA ACT (ACT X of 2010) Punjab. In Khyber Pakhtunkhwa, the TEVTA was established under the TEVTA Ordinance No xxx111 of 2002 on February 09, 2002, whereas the Directorate General Technical Education and Manpower Training was declared as the Secretariat of TEVTA, Khyber Pakhtunkhwa. In Sindh, TVETA Bill was passed by the Provincial Assembly on 29th March 2010 and was declared as an Act on 14th April 2010.

Institutional Challenges

For the provincial level implementation of the above legislations/ acts, the authorities such as the TEVTAs, are entrusted with planning and executing training programmes as well as carrying out tasks such as revision/ development of curriculum, registration of institutions, training of trainers etc. In addition, the Directorates of Technical Education (DTE), Provincial Directorates of Manpower Training and some other agencies for the public sector run their own vocational training programmes in the public sector. The National Training Board (NTB) and the associated Trade Testing Boards (TTBs) are responsible for their own examinations and issuing of skill training certificates.

Thus, as whole, the TVET sector is undergoing a restructuring process to position itself as a demand-driven training sector in line with the prevalent training systems elsewhere in the world (NISTD 2009)⁶. It also aims, as expressed in the National Skill Strategy (NSS) 2009-2013, to introduce competency-based

⁶Research Study on Technical and Vocational Education in Pakistan at Secondary Level National Institute of Science and Technical Education in collaboration with UNESCO, Islamabad (2009)

training (CBT) to ensure that its training programmes produce quality productive skilled workers. A TVET reforms support programme (2011-2016) was also launched to provide technical, financial and infrastructural support the Government's initiative outlined in Skilling Pakistan to reform TVET sector of government of Pakistan. But there have been few challenges faced by both federal government (NAVTTTC) and provincial governments (TEVTAs) that require immediate solution for achieving the desired outcome. The major challenge is to meet the growing demand for skilled workers for the country's economic development and to export human resource elsewhere in the labour deficient countries. Another major challenge is the lack of emphasis on inclusiveness of the poor, female youth, disabled persons and hence their acquisition as skilled workers. Unfortunately, some traditional skills being integral part of rural society are not well respected in our society (e.g., barber, carpenter, masonry, smith, pottery etc. are considered as low class in our social system). These skills continued to be traditional because there were no formal training program/ emphasis and no awareness interventions to improve these skills as part of the society, but this perception is now changing.

The poor are excluded from the formal training system, and even in the informal sector they are marginalized as training is dependent on social and community connections⁷. Thus, they remain much more likely to be uneducated, have much more difficulties in accessing formal skills training due to entry requirements related to qualifications and fees. Women's access to skills in the society is another issue. About 20.6 percent of the women in a household survey indicated some form of skills training, but only 18 percent had utilized the skills to generate income⁸.

More recently a National TVET Road Map has been approved to further strengthen the above reforms. However, beside policy instruments, there is a dire need of ensuring procedural measures that would ensure an effective implementation of the policies in line with the supply and demand requirements for achieving the overall associated objectives. There is also a need to establish the importance of quality and access of TVET services in a gender sensitive and pro-poor manner for achieving its associated objectives of employability, poverty reduction and economic growth.

Status of TVET sectoral supply and demand

It is estimated that there is huge difference in the TVET sector demand supply of skilled workforce in all sectors. NSIS report reveals that the supply of trained human resource is 445,072 whereas, the demand for skilled force both in national and international market is 1,025,860⁹. The huge gap must be filled immediately to provide employment and to make human capital for a win-win situation. Presently the most needed sectors that require major attention are hospitals, IT, pharmaceutical, textile and construction sector where skilled workers are deficient and need immediate intervention specifically in all steps of skill development process.

⁷Is Skills Training a Good Investment for the Poor? Evidence from Pakistan' by Shehryar Janjua (2011) from the Mahboub ul Hag Human Development Centre

⁸ ibid

⁹ NSIS report 2017.

Workforce demand in overseas labour market also exist which indicates that there is a need of 463,398 skilled workforces at international level¹⁰. For women, however, the situation is a bit reverse –with about 36 percent supply of skilled workers against 5 percent demand. TVET Sector authorities need proper strategic working to get women folk engaged in TVET sector to enhance their demand for employability and to contribute to the economy.

Province-wise the supply and demand gap situations are not much different. In KP, skilled workforce deficiency exists in manufacturing (79%) and construction sector (18%). On the other hand, mining and service sectors have almost balanced supply and demand¹¹. The shortage of these skilled workforce has been fulfilled perhaps through work-based-learners.

In Balochistan, the highest deficiency of skilled workforce has been recorded in mining sector with 61 percent demand against 39 percent availability of skilled workforce. Fisheries sector is next with second highest skill deficiency with 52 percent demand against 48 percent of the existing strength of skilled workforce. Skill workforce deficiency in construction sector is also significant 44 percent. The manufacturing sector and service sector lacks 31 percent and 25 percent skilled workforce against 69 percent and 75 percent availability respectively¹². The informal sector is the highest source of skilled workforce followed by work-based learner in manufacturing, construction, mining, service and ship breaking industries.

In Punjab, there is high demand of skilled workforce in all sectors and most demand is met from the informal sector. The formal sector is also contributing in meeting the demand because of several TVET institutions providing trainings, however, the province is still unable to meet the effective employment of youth.

Sindh province has a similar situation like Punjab. In both provinces, manufacturing sector has greater chunk to provide employment followed by services sector.

In AJK, Tourism, Energy & Power and Manufacturing Sector are potential source of employment of skilled youth. Construction sector may be facing greatest deficiency of the skilled workers due to the emerging power sector and CPEC.

¹⁰ ibid

¹¹ Skill Gap Analysis KPK, NSIS

¹² NSIS Project Document

Survey Results and Interpretation

The information was collected from the list of registered firms in each province who are the main employers of the skilled workforce in the construction sector. Therefore, the information covers only skilled workforce who are employed by or are in demand in the formal construction sector (i.e., based on information collected from the registered firms). Informal sector (e.g., independent contractors in housing) which utilize a large part of the skilled workforce in the construction has not been included in the scope of study.

The analysis is structured according to three major indicators:

1. Existing workforce employed in the construction sector from any source;
2. Status and gap in demand and supply of skilled workforce trained through formal education; and,
3. Future skilled workforce requirement to be trained through formal education by trades in the construction sector.

Existing Employment Pattern of Skilled Workforce in the Construction sector

Figure 2 provides the existing pattern of employment of the skilled workforce by source. The results indicate that skilled workforce in the construction sector is currently picked-up mainly from those who have learned the skills on the job (work-based learners) or a similar informal sector who may not have obtained any formal education. The share of TVET Graduates (includes B-Tech, Diploma, Certificate, Short Course) in the current employment in the construction sector is only 14 percent (see figure 2).

The remaining 77 percent skilled workforce come from non-formal training courses in which 48 percent were from work-based learners; 29 percent were from the informal sector, where the response from around 6 percent could not be received. Province-wise, the situation is not much different. The share of TVET graduates in the existing employment ranges from 9 percent in Balochistan, 10 percent in AJK, 14 percent in KP, 15 percent in Punjab and 16 percent in Sindh (see figure 3). Unfortunately, female workforce engagement in the construction sector is close to none except in Punjab and Sindh where a small proportion of female workforce (less than 5%) was engaged (figure 4).

The respondents perceive that the skilled workforce who are trained on-the-job or those selected from the informal construction sector are easily available in the informal market place when needed and at the same time they demand low wage rates. The respondents however mentioned that for them it is difficult to retain them and always on a search for skilled workers who can make long-term contract.

Figure 2: Existing Employment pattern of Skilled Workforce by source of training

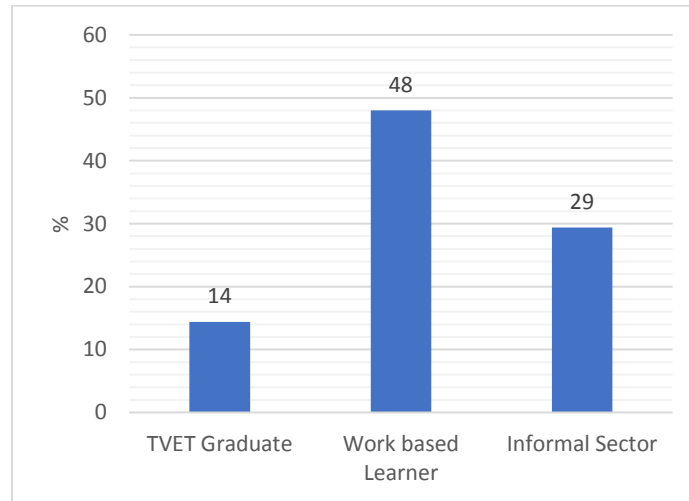


Figure 3: Province-wise Existing Employment pattern of Skilled Workforce by source of training

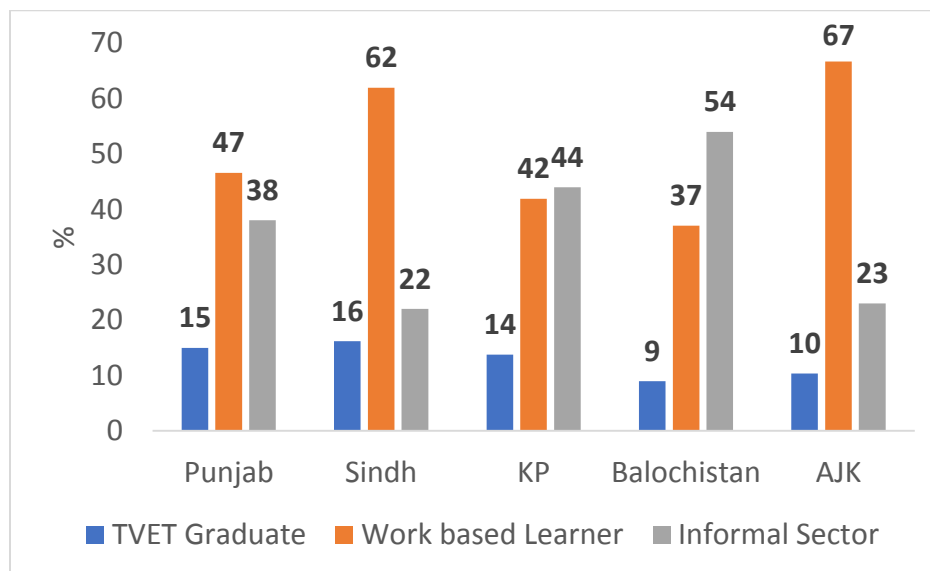
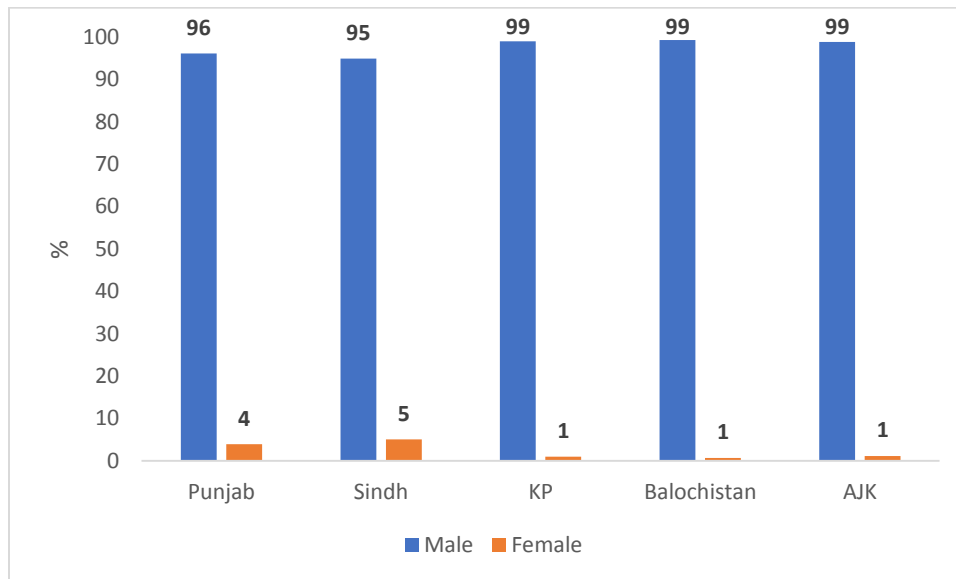


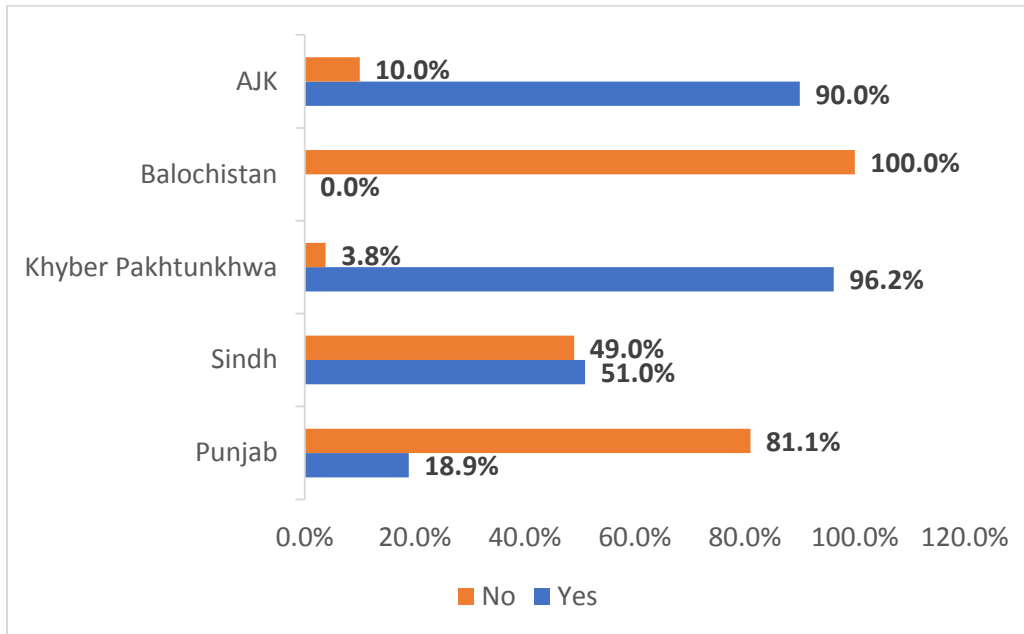
Figure 4: Gender wise existing employment pattern of skilled workforce by Province



Current Skilled Workforce Deficiency

Mixed results were observed across provinces (figure 5). The KP, AJK and to some extent Sindh show high shortages of skilled workforce in the construction sector. In Punjab the respondents mentioned that the availability of skilled workforce in the construction sector is more than the demand which is well understood as majority of workers migrate from other provinces to seek work in Punjab. In the case of Balochistan, all the respondents mentioned that there is no shortage of skilled workforce in the construction sector. This is perhaps because of the reason that economic activities in Balochistan are limited including the construction sector.

Figure5: Province-wise skilled workforce deficiency



Further analysis was conducted to assess trade-wise deficiencies of skilled workers in the construction sector for each province (see figure 6 to figure 10) and annex 1). In general, among all the provinces, the contractors reported that they face scarcity of skilled workforce, that is the demand for skilled workforce in most trades for the construction sector exist and is higher than the supply.

These results are further described province wise. In Punjab province, the results indicate a significant gap in demand and supply where demand of formally skilled workers is higher than the supply, except Civil DAE where its supply is slightly more than the demand (figure 6). This response is however seeming to be conflicting with the results in figure 5 in which Punjab shows no deficiency of the skilled workforce.

Perhaps there is an imbalance of the availability of skilled workforce trained through formal education and those who are abundantly available from informal sector. In Sindh province, significant deficiency exists for trained workforce in the construction sector with the exception that the province has surplus workforce in few trades like plumber, electrician and welder (figure 7). In KP, civil DAE and welders are in greater supply than the demand (Figure 8). In Balochistan skilled workers in all trades were found to be deficient (figure 9). Finally, in AJK, with the exception of civil surveyors, skilled workers in all trades were found to be deficient (figure 10).

Figure 6: Punjab Skills Gap Analysis:

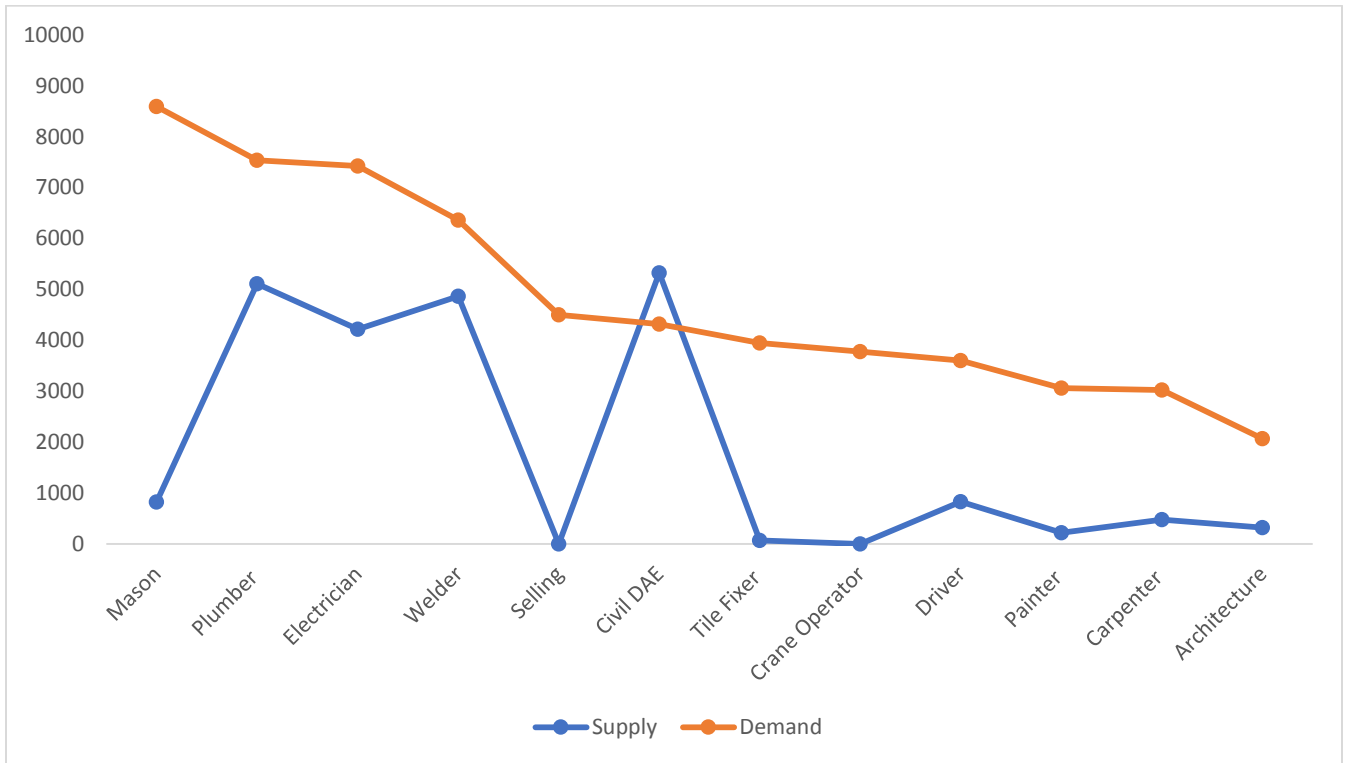


Figure 7: Sindh Skills Gap Analysis

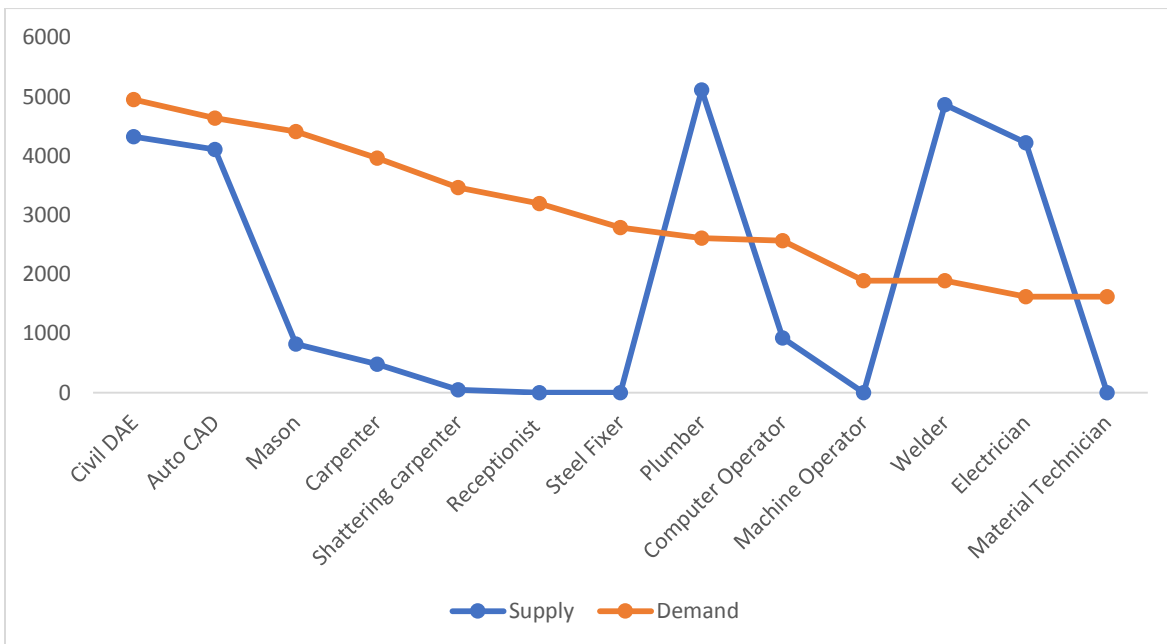


Figure 8: KP Skills Gap Analysis

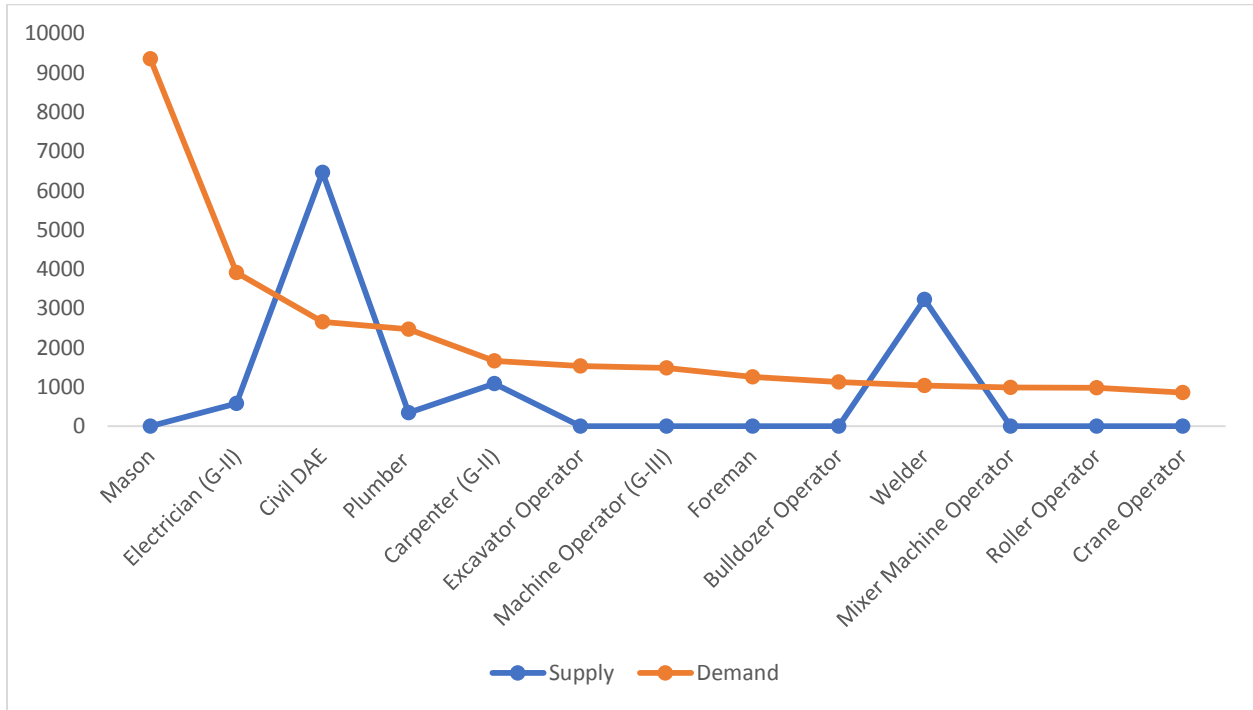


Figure 9: Baluchistan Skills Gap Analysis

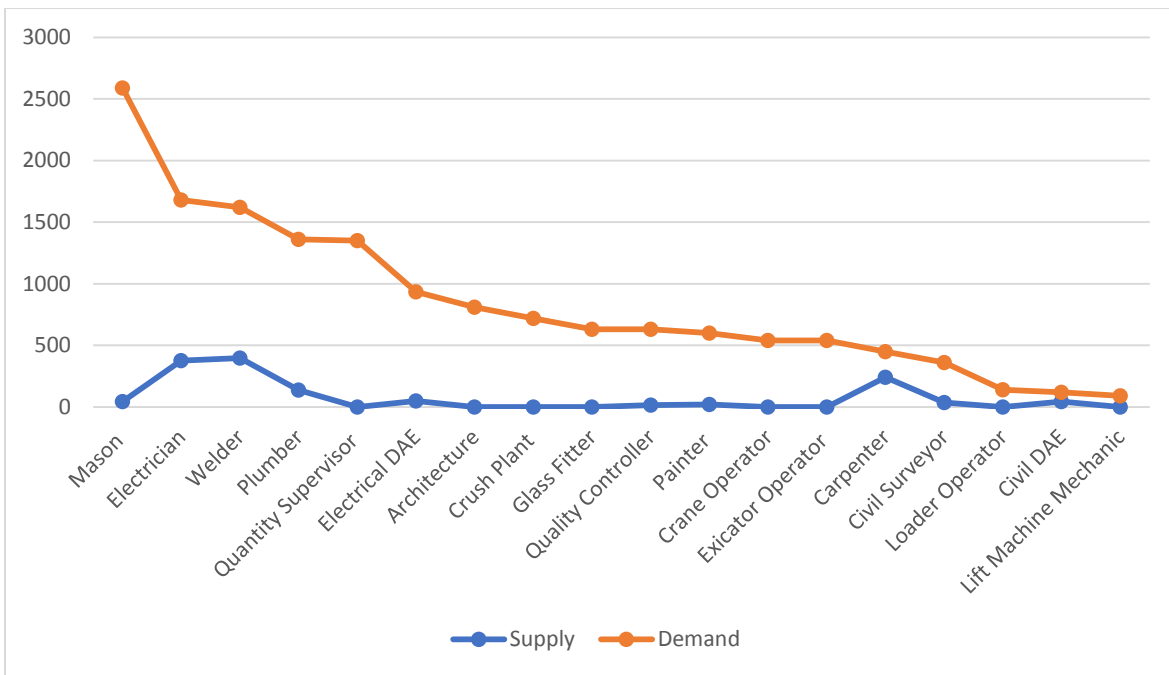
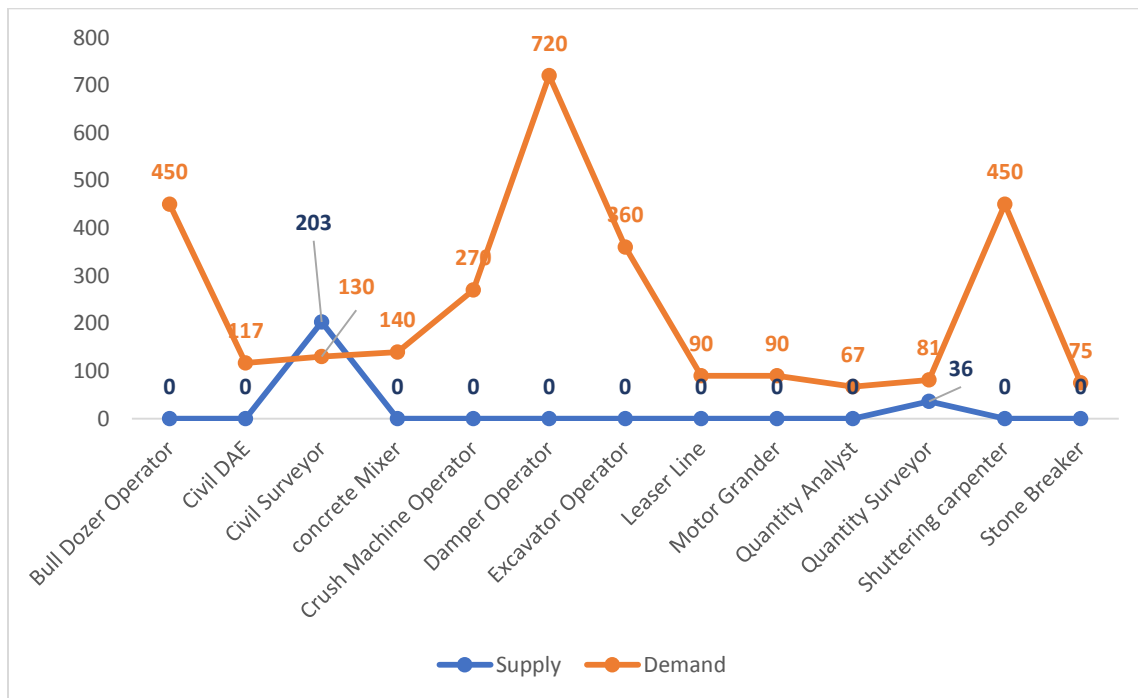


Figure10: AJK Skills Gap Analysis

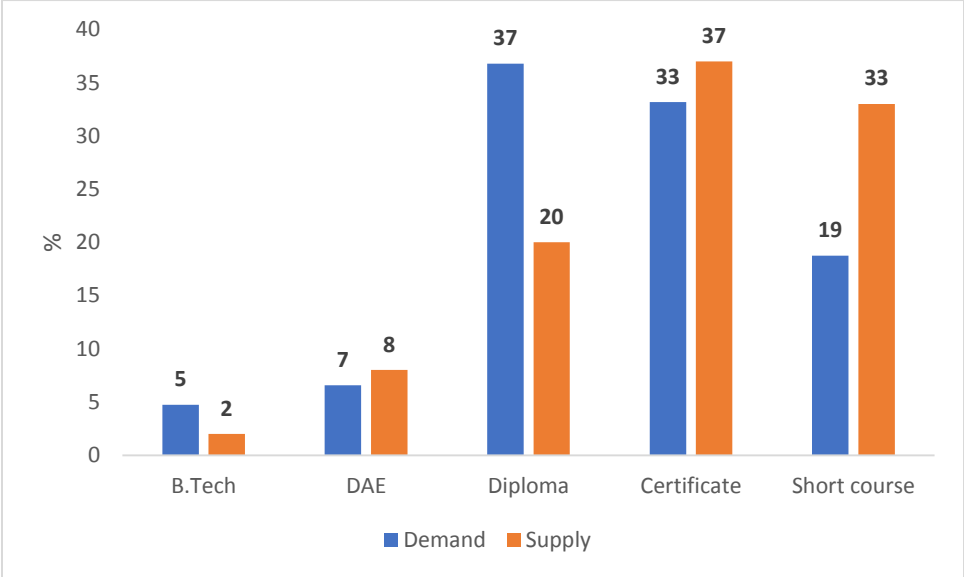


Future Demand of Skilled Workforce in the Construction Sector

Analysis was made to examine the future demand of the TVET graduates against the supply in the construction sector at country level (figure 11). The results reveal that skilled workers with lower qualification e.g., those having diploma or certificate or obtained training through short courses have high future demand in the construction sector compared to B-tech. This is perhaps because of the reason that the skilled workers with lower qualification demand less wage rate and are easily adjusted with contractors in workforce.

It was also found that certificate holders and with short-courses are in abundant supply, perhaps due to the many such training centres in the private sector whose quality is still questioned. This may be a major reason that the contractors usually employ skilled workers from informal sector or train them on the job.

Figure 11: Demand of TVET Graduates in construction sector in Pakistan



Further analysis was conducted to assess the demand of TVET graduates by Gender (figure 12). It is interesting to mention that while male graduates in general are more in demand, the demand of female

(though still minor) is of those who are more qualified that is DAE (about 4%) and B-Tech (about 2%). This perhaps reflects that female skilled workers are required for more sophisticated work that does not require spade/ heavy work.

Demand of TVET graduates was also analysed province-wise as shown in figure 13. In all provinces, the demand for trained skilled workforce was reported for diploma and certificate holders and some for short courses. Given that many private institutes are providing such short courses including construction sector, the supply of these workers may not be an issue, however, quality of skilled workers from these private institutes maybe questioned. While the respondents generally rely more on the skilled workers from the informal market place or train the workers on-the-job, yet majority of respondents showed satisfaction about the work of TVET graduates on job (figure 14)

Figure 12: Demand of TVET Graduates in construction sector in Pakistan by Gender

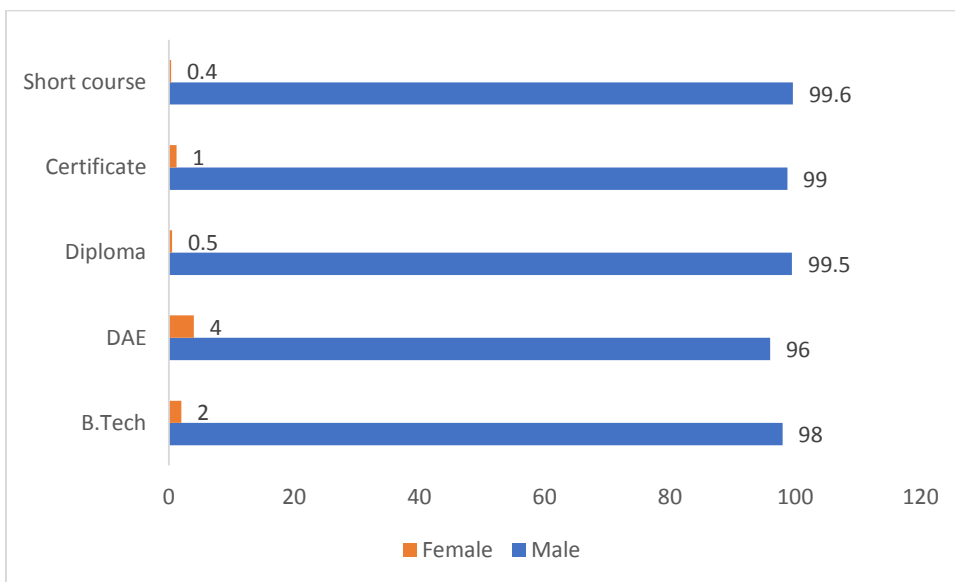


Figure 13: Province-wise Skills demand by level of training

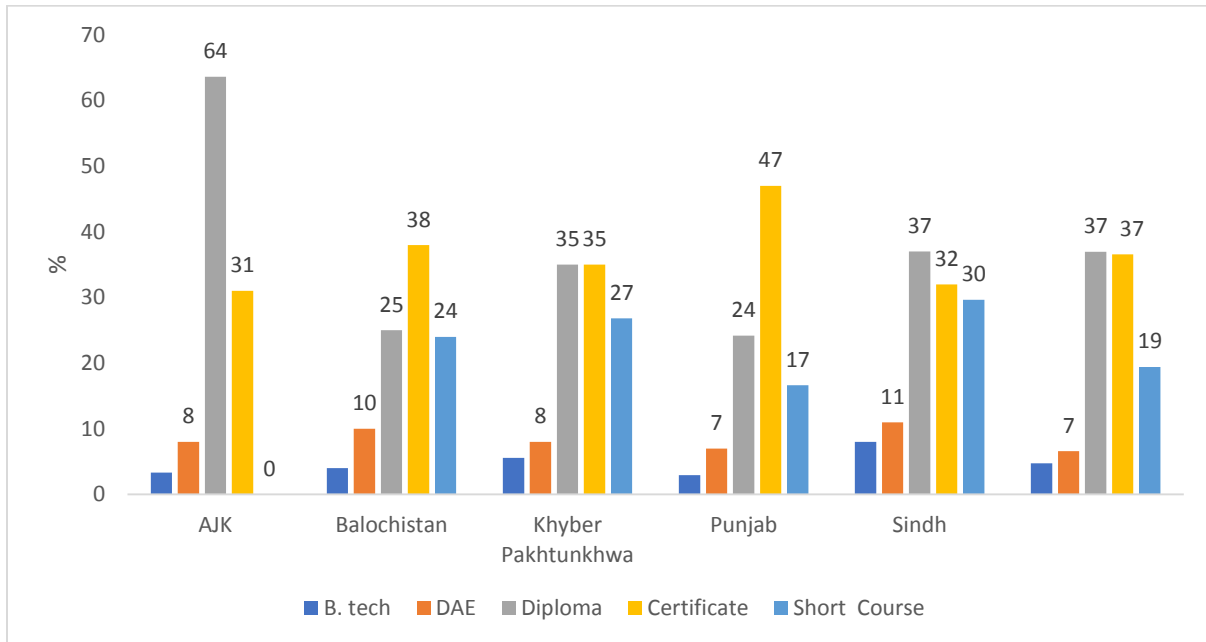
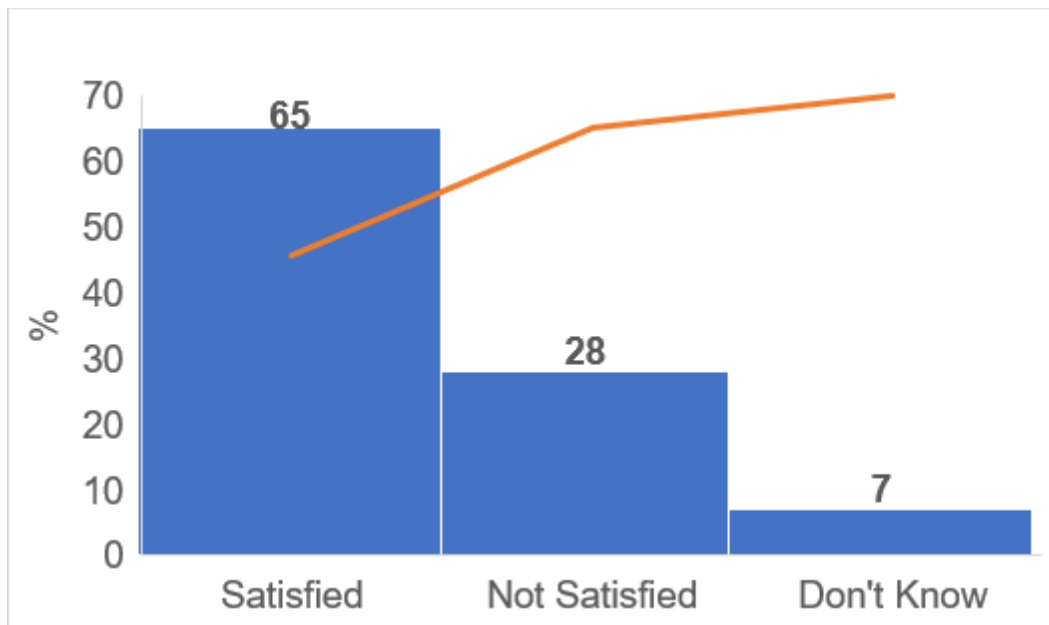


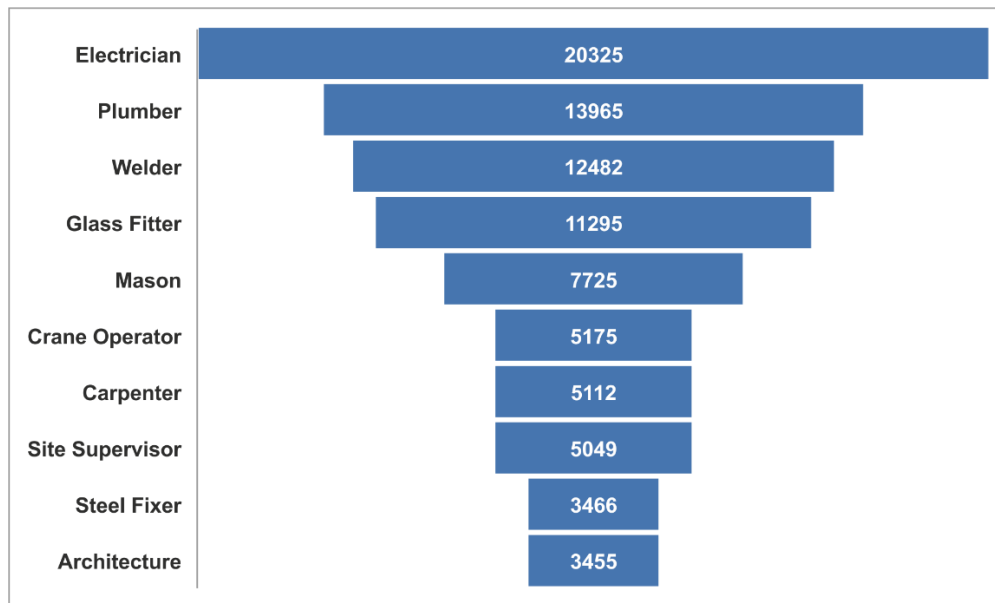
Figure: 14 Employers Level of Satisfaction with TVET Graduates on Job



Demand of Top 10 trades

Figure 15 provides list of top 10 trades based on number of skilled workers in demand. Among these trades, electricians require more than 20,000 skilled workers all over Pakistan followed by plumber (about 14,000), welder (about 12,500), glass fitter (above 11,000) and mason (about 8,000). The remaining trades' demand for skilled workers is 5,000 or below. Province wise demand of these skilled workers is given in annex 2. A total of 45,144 trained skill workers would be required under various trades all over Pakistan. Punjab and Sindh are in higher demand of skilled workers (about 71%), followed by KP with a small number in AJK. Balochistan shows zero demand for skilled workers (perhaps this question was skipped during the interviews).

Figure 15: Top 10 leading Trades demand in construction sector (Number of Skilled workers)



Respondents Knowledge about TVET and relevant institutional arrangements

The respondents were also probed about their knowledge of TVET and relevant institutional arrangement. It was encouraging that the majority of registered construction firms in all provinces were aware about Technical Vocational and Training (TVET) and also had prior knowledge about the existence of TEVTA and PVTC (see figure 16 & 17). Level of understanding of the respondents and if they are using these services for training and a feedback for improvement could not be probed in the survey. This would have been a useful feedback for further improvement of these institutions.

Figure 16: Knowledge about TVET

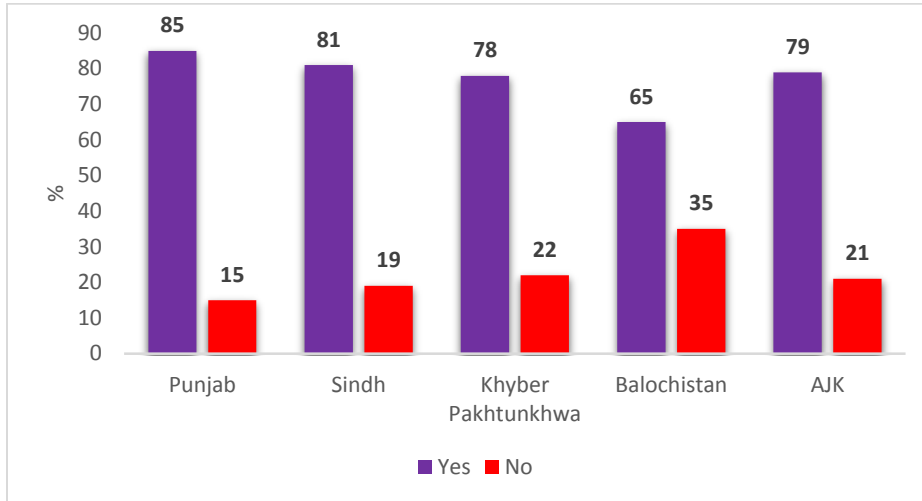
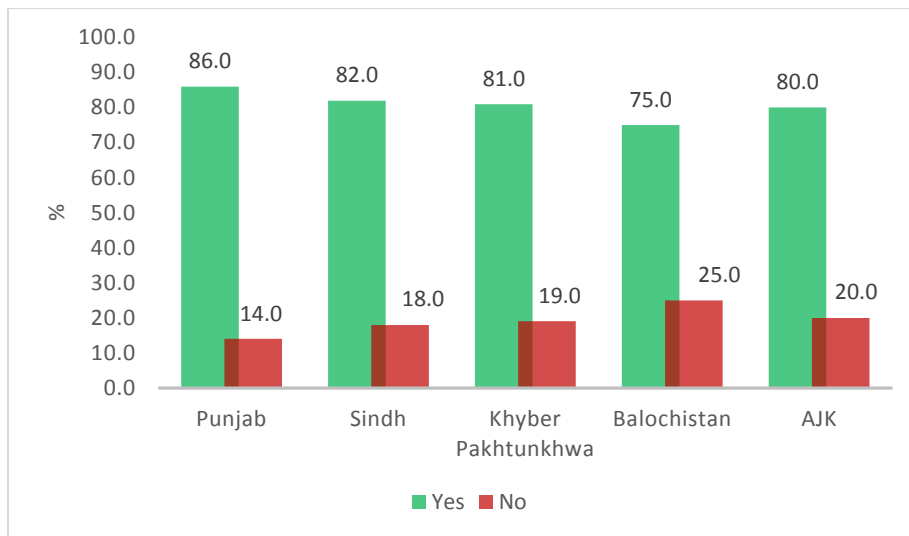


Figure 17: Knowledge about TEVTA/PVTC



Summary of conclusions and recommendations

Technical Education and Vocational Training (TVET) offers substantial opportunities for the employability of youth in all trades including the construction sector. Government has been spending substantial money to build skilled workforce for productive employment of the youth population to raise their income and for them to effectively contribute to the economy. Secondary sources reveal that currently less than 2 percent of youth population (of 4 million who reach to the working age) has acquired technical skill through the TVET system and therefore, it is insufficient to meet local and international demand.

This study concluded that in the construction sector there is a high demand (more than the supply) of skilled workforce. However, contractors meet this demand by engaging the work-based learners or hiring from the informal sector. These workers are easily available in the market place at low wage rate. Wherever the trained workforce is employed, they engage the skilled workforce from low level qualification e.g., mainly diplomas, certificate or short-courses. This makes sense because highly qualified skilled workers with B-tech degree or above are rarely required in the construction sector. Among the top ten trades required by the contractors, only a small proportion of workers were reported at the level of supervisor or architecture who may need B-tech. Contractors also have less confidence and perceive that the trained skilled workers would not be able to deliver quality job as these are mostly fresh graduates with no experience and at the same time, they would demand high wage rate compared to those hired from informal sources.

Female employment of skilled workers in the construction sector is negligible in all provinces and they are of less demand given the fact that the construction sector may not provide conducive work environment keeping in view cultural limits.

The study further concludes that the contractors overall including in the construction sector are less aware as from where the trained skilled labour force could be hired. Presently there is no market place where the trained skilled workforce is available (with the exception of few resource employment centres established by the government) and contractors are not aware of these centres.

Following recommendations are provided which can apply for all sectors including the construction sector:

1. At present there is no mechanism to link the TVET trained workforce with contractors. Government needs to establish local market places of Job Placement Centres to register the formally qualified skilled workers in construction sector.

2. NAVTTC has established about 100 Job Placement Centres, these centres need to be strengthened and their linkage with employers need to be established for easing the employment process.
3. For bridging the gap between employer and TVET institutes, awareness sessions need to be organized. These interactions will enhance understanding and create close linkages between employers and skilled workers.
4. Training packages for construction sector need to be reviewed and updated according to local and international job markets. In this regard, National Competency Standards (NCS) must be introduced for all the occupations relating to construction sector.
5. A system of Recognition of Prior Learning (RPL) must be introduced for workers employed in construction sector so that the chances of their employability and recognition are increased.

Annex1:

Supply and Demand Gap Analysis

Province	Trade	Supply	Demand	Gaps
AJK	Bulldozer Operator	0	450	(450)
	Civil DAE	0	117	(117)
	Civil Surveyor	203	130	73
	Concrete Mixer	0	140	(140)
	Crush Machine Operator	0	270	(270)
	Damper Operator	0	720	(720)
	Excavator Operator	0	360	(360)
	Leaser Line	0	90	(90)
	Motor Grander	0	90	(90)
	Quantity Analyst	0	67	(67)
	Quantity Surveyor	36	81	(45)
	Shuttering Carpenter	0	450	(450)
	Stone Breaker	0	75	(75)
	Balochistan	Architecture	0	810
Carpenter		240	450	(210)
Civil DAE		45	120	(75)
Civil Surveyor		35	360	(325)
Crane Operator		0	540	(540)
Crush Plant		0	720	(720)
Electrical DAE		48	935	(887)
Electrician		376	1680	(1,304)
Excicator Operator		0	540	(540)
Glass Fitter		0	630	(630)
Lift Machine Mechanic		0	90	(90)
Loader Operator		0	140	(140)
Mason		45	2590	(2,545)
Painter		20	600	(580)
Plumber		138	1360	(1,222)
Quality Controller		15	630	(615)
Quantity Supervisor		0	1350	(1,350)

Province	Trade	Supply	Demand	Gaps	
	Welder	396	1620	(1,224)	
Khyber Pakhtunkhwa	Aluminium & Steel Fabricator	0	70	(70)	
	Bulldozer Operator	0	1125	(1,125)	
	Carpenter (G-II)	1085	1665	(580)	
	Civil (B. Tech)	168	675	(507)	
	Civil DAE	6469	2655	3,814	
	Civil Surveyor	274	405	(131)	
	Crane Operator	0	855	(855)	
	Driving	744	135	609	
	Dumper Operator	0	810	(810)	
	Electrician (G-II)	578	3915	(3,337)	
	Excavator Operator	0	1530	(1,530)	
	Foreman	0	1260	(1,260)	
	Generator Mechanic	74	495	(421)	
	Loader Operator	0	315	(315)	
	Machine Operator (G-III)	0	1485	(1,485)	
	Marble Setter (ATs)	0	585	(585)	
	Mason	0	9360	(9,360)	
	Material Technician	0	135	(135)	
	Mixer Machine Operator	0	990	(990)	
	Painter (G-III)	0	180	(180)	
	Plant Operator (ATs)	0	270	(270)	
	Plumber	344	2475	(2,131)	
	Quantity Surveyor	76	45	31	
	Roller Operator	0	980	(980)	
	Security Guard	0	765	(765)	
	Structural Engineer	0	225	(225)	
	Tractor & Trolley Drivers (ATs)	0	495	(495)	
	Welder	3228	1035	2,193	
	Punjab	Accountant	660	1125	(465)
		Aluminium	170	84	86
Architecture		321	2070	(1,749)	
Auto CAD Operator		4107	135	3,972	
Carpenter		478	3020	(2,542)	
Civil DAE		5327	4320	1,007	

Province	Trade	Supply	Demand	Gaps
	Civil Surveyor	1494	540	954
	Computer Operator	922	360	562
	Crane Operator	0	3780	(3,780)
	Designer	0	270	(270)
	Driver	826	3600	(2,774)
	Electrical DAE	4893	2070	2,823
	Electrician	4219	7425	(3,206)
	Foreman	0	90	(90)
	Glass Fitter	302	1665	(1,363)
	Helper	0	450	(450)
	Iron Work	0	180	(180)
	Marble Fixer	0	270	(270)
	Mason	821	8595	(7,774)
	Painter	218	3060	(2,842)
	Plumber	5110	7540	(2,430)
	Quality Surveyor	416	90	326
	Quantity Supervisor	0	945	(945)
	Rigger	0	270	(270)
	Security Guard	0	630	(630)
	Selling	0	4500	(4,500)
	Shuttering carpenter	150	180	(30)
	Tile Fixer	67	3945	(3,878)
	Wall Paper Designer	0	90	(90)
	Welder	4864	6360	(1,496)
	Wood Work	299	760	(461)
Sindh	3D design	0	495	(495)
	AC Technician	660	90	570
	Accountant	211	540	(329)
	Architecture	91	1395	(1,304)
	Auto CAD	4107	4635	(528)
	Carpenter	478	3960	(3,482)
	Civil DAE	4322	4950	(628)
	Civil Surveyor	1494	1290	204
	Computer Operator	922	2565	(1,643)
	Crane Driver	0	450	(450)
	Draftsman	138	1440	(1,302)

Province	Trade	Supply	Demand	Gaps
	Driver	26	540	(514)
	DAE Electrical	4893	180	4,713
	Electrician	4219	1620	2,599
	Excavator Driver	0	180	(180)
	False Ceiling Expert	0	270	(270)
	Front Desk Officer	0	45	(45)
	Gardner	0	900	(900)
	Glass Worker	0	720	(720)
	Interior Design	0	1395	(1,395)
	Lift Operator	0	180	(180)
	Machine Operator	0	1890	(1,890)
	Marketing Expert	0	370	(370)
	Mason	821	4410	(3,589)
	Material Technician	0	1620	(1,620)
	Mixer Machine Operator	0	270	(270)
	Network Tech.	0	180	(180)
	Paint Polish	12	540	(528)
	Painter	118	1170	(1,052)
	Plumber	5110	2610	2,500
	Quantity Surveyor	416	810	(394)
	Receptionist	0	3195	(3,195)
	Shattering carpenter	45	3465	(3,420)
	Steel Fixer	0	2790	(2,790)
	Structure Designer	0	225	(225)
	Tile Fixer	0	1234	(1,234)
	Wallpaper Designer	0	450	(450)
	Web Developer	1488	90	1,398
	Welder	4864	1890	2,974
	Wood Worker	99	495	(396)

Annex 2:

Future skilled worker requirement province-wise by trade.

Trade	AJK	Baluchistan	Khyber Pakhtunkhwa	Punjab	Sindh	Grand Total
Aluminium & Steel Fabricator			1215			1215
Architecture				405	45	450
Auto CAD					360	360
Bit main Operator			675			675
Blacksmith (ATs)			450			450
Block Mason					360	360
Bulldozer Operator			180			180
Call Service Agent					90	90
Carpenter				495	1935	2430
Carpenter (G-II)			980			980
Civil (B. Tech Pass)			90			90
DAE Civil	45			270		315
Civil Surveyor	45					45
Client Coordinator					90	90
Computer Operator					405	405
Concrete Machine Operator	45					45
Concrete Pump Operator	45					45
Constructor				90		90
Cook (ATs)/Kitchen Operator			135			135
Cost Estimator					270	270
Crane Operator (ATs)	135		90			225
Damper Operator	180					180
Decorator					90	90
Designer				225	90	315
Draftsman				45	90	135
Driver			45		1485	1530
Dumper Operator			455			455
DAE Electrical				360		360
Electrician				90	1350	1440
Electrician				3780		3780
Electrician (G-II)			620			620
Excavator Driver					45	45
Excavator Operator	360		405			765
False Ceiling Expert					90	90

Trade	AJK	Baluchistan	Khyber Pakhtunkhwa	Punjab	Sindh	Grand Total
Fibre Reinforced Pipe Fabricator (ATs)			135			135
Firefighter (ATs)			90			90
Floor Work				45		45
Foreman			450		45	495
Front Desk Officer					135	135
Gardner				45	855	900
Generator Operator					90	90
Glass & Ceramics (DAE)			225			225
Glass Work				225		225
In charge	45					45
Interior Designer				450	360	810
Iron Work				90		90
Leaser Line Level	45					45
Lift Machine Operator					90	90
Loader Operator			450			450
Machine Operator (G-III)			125			125
Maison				2430		2430
Marble Fixer				270		270
Marble Polish				45		45
Marble Setter (ATs)			340			340
Mason			238		2070	2308
Mechanic (Electrical Instrument) (ATs)			45			45
Microsoft Expert					90	90
Mixer Machine Operator			810			810
Motor Grander	45					45
Network Tech.					180	180
Painter			675	180	1035	1890
Plant Operator (ATs)			405			405
Plaster Mason					90	90
Plumber				4545	575	5120
Plumber (G-II)			750			750
Polisher				135		135
Professional Chef			90			90
Quantity Surveyor	180				180	360
Receptionist					45	45
Roller Operator			765			765
Roof Worker					0	0
Safety Officer	45					45

Trade	AJK	Baluchistan	Khyber Pakhtunkhwa	Punjab	Sindh	Grand Total
Security Guard					225	225
Selling				45		45
Shattering Carpenter	45			180	180	405
Sheet Work				90		90
Software Experts					135	135
Store Keeper					270	270
Supervisor					405	405
Supervisor (Dying & Bleaching) (ATs)			121			121
Surveyor	45		45			90
Tile Fixer				630	1485	2115
Tile Polisher				45		45
Tractor & Trolley Drivers (ATs)			45			45
Trencher	90					90
Wall Paper Work				180		180
Welder				990	135	1125
Welder (G-II)			485			485
Wood Work				270		270
Grand Total	1,395	0	11,629	16,650	15,470	45,144

Questionnaire

Skilled Workforce Demand Side Questionnaires

This information supplied on this format will be kept strictly confidential and will be used for research & Planning of National Skills Information System, NAVTTC, Government of Pakistan

Name of organization: _____

Dated: _____ for the Year: _____ Organization Contact No: _____

Email: _____ Address of the establishment _____

Name of focal person: _____ Contact no: _____

Sector: _____ Sub-Sector: _____

Existing Skilled Workers (Only Skilled workers)

S. N	Trade Name	No. of workers		Source Codes														
		Male	Female	Male				Female										
				1	2	3	77	Specify in case of other		1	2	3	77	Specify in case of other				
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Code: 1- TVET Graduate, 2- Work based learner, 3- Informal sector, 77- Others (Specify)

2. Skills deficiencies

2.1: Do you face local skilled workforce deficiencies? 1= Yes 2= No (Go to Q.3)

2.2: In case of Yes (Trade and level wise Number)

S.N	Trade name	Level (use codes)							Number
		1	2	3	4	5	77	Specify in case of other	
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Codes:1: B. Tech, 2: DAE, 3= Diploma, 4= Certificate, 5= short course, 6= others (Specify)

3. Future Skills requirement

S.N	Trade Name	Source Codes														Number/Annum	
		Male							Female							Male	Female
		1	2	3	4	5	77	1	2	3	4	5	77				
1																	

